



*International Civil Aviation Organization*

NORTH AMERICAN, CENTRAL AMERICAN AND CARIBBEAN OFFICE

**Second Meeting of the North Atlantic/Caribbean ATS Routes Working Group (NAT/CAR WG/2)**

(Miami, Florida, USA, 8-10 May 2007)

NAT/CAR WG/2 – IP/05

21/04/07

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**Agenda Item 2: WATRS Plus Airspace Redesign Issues**

**AIRSPACE TRAFFIC FLOW AND AIRCRAFT EQUIPAGE STUDIES**

(Presented by the United States)

The attached material summarizes the results of U.S. studies of traffic flows and aircraft equipage in WATRS Plus Control Areas (CTA). These studies formed a basis for the development of the route structure redesign plan.

**1. Introduction**

1.1 The attached material summarizes the results of U.S. studies of traffic flows and aircraft equipage in WATRS Plus Control Areas (CTA). These studies formed a basis for the development of the route structure redesign plan. The studies will be referenced during the meeting.

**2. Conclusion**

2.1 The meeting is invited to review the attached material.

## APPENDIX A

### SUMMARY OF WATRS PLUS KNOW YOUR AIRSPACE ANALYSIS

- Know Your Airspace (KYA) analysis prepared by CSSI for Separation Standards Analysis Group at FAA Technical Center
- Provides basic information for airspace planners, separation analysts and decision makers.

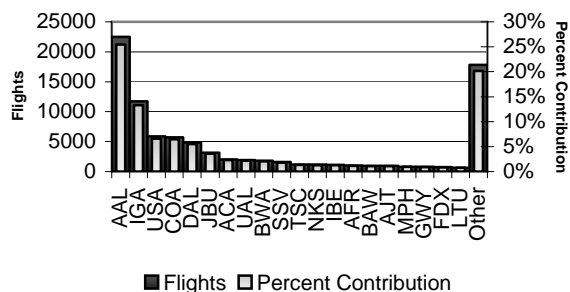
### Content Highlights

#### Data Collection and Processing

- 105-day traffic sample (1 Dec 2005 to 15 March 2006)
- Data derived from Enhanced Traffic Management System (ETMS)
- ETMS collects data from various sources: scheduled flight messages, NAS messages, DOTS, Estimated Departure Clearance Time and flight substitution messages

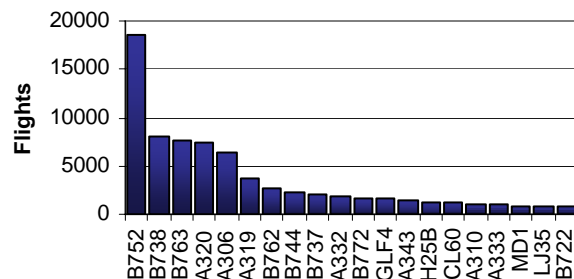
#### Top 20 Operators

- Top 20 operators conduct 80% of flights.
- Remaining 20% of the flights in the airspace were attributed to 336 operators collectively identified as “Other”
- 98 of the 356 operators observed (27.5%) conducted only 1 or 2 flights during the 105-day sample period.
- Most frequent operator conducts approx. 25% of the flights.
- IGA conducts approx. 13% of the flights



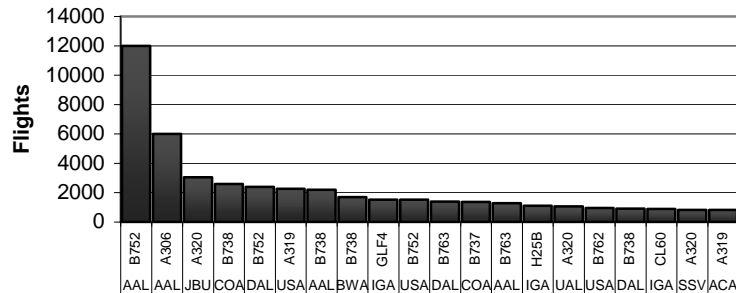
#### Top 20 Aircraft Types

- Top 20 aircraft types account for 82% of flights
- 280 aircraft types observed.



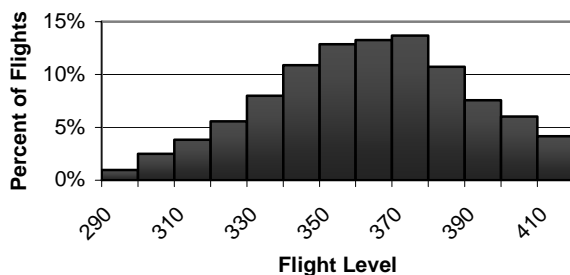
### TOP 20 OPERATOR AIRCRAFT TYPE COMBINATIONS

The top 20 operator/aircraft type combinations represent approximately 52% of the operations.



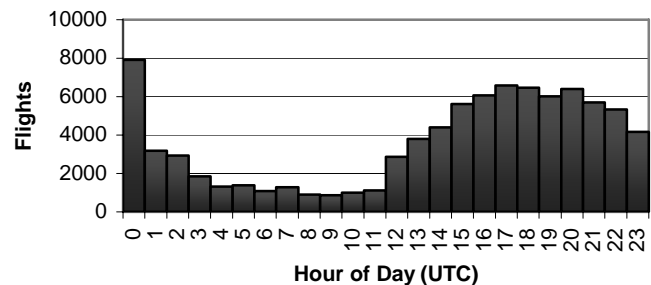
### Flight Level Utilization

The flight levels with the highest concentration of traffic, 350,360 and 370, account for approximately 40% of the operations in the traffic sample.



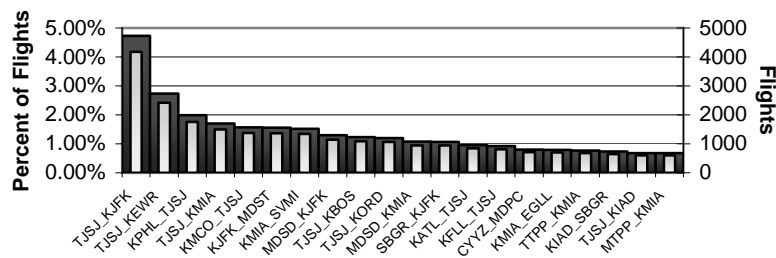
### WATRS Plus Entry Time Distribution

The highest concentration of traffic occurs between 1400 coordinated universal time (UTC) and 0100 UTC. The 1400 to 0100 UTC time block represents 68% of the total traffic.

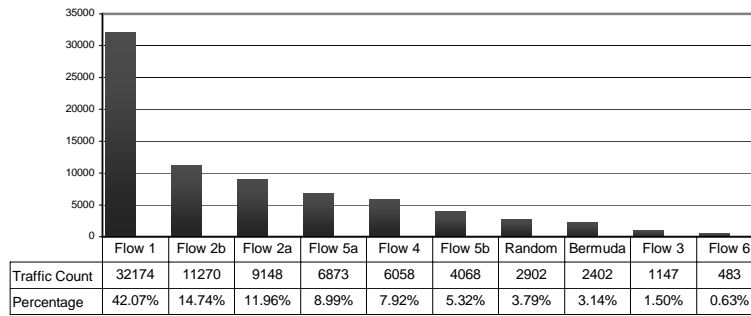


### Top 20 City Pairs

- The top 20 city pairs represent approximately 28% of the operations.
- San Juan Luis Munoz Marin Airport to New York John F. Kennedy Airport is the most flown city pair contributing 5% of the traffic.

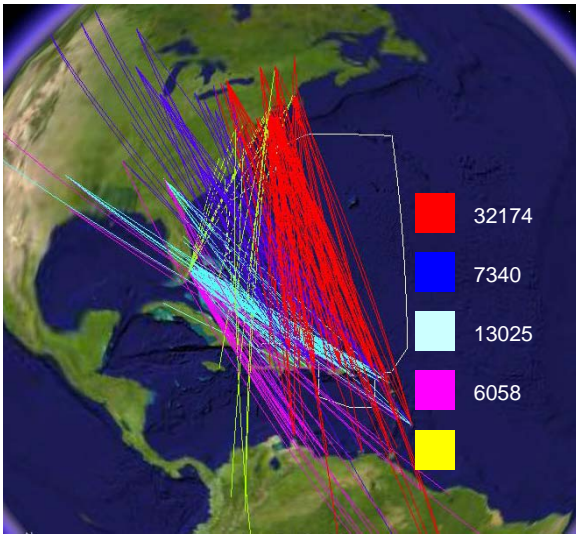


## Flow Analysis

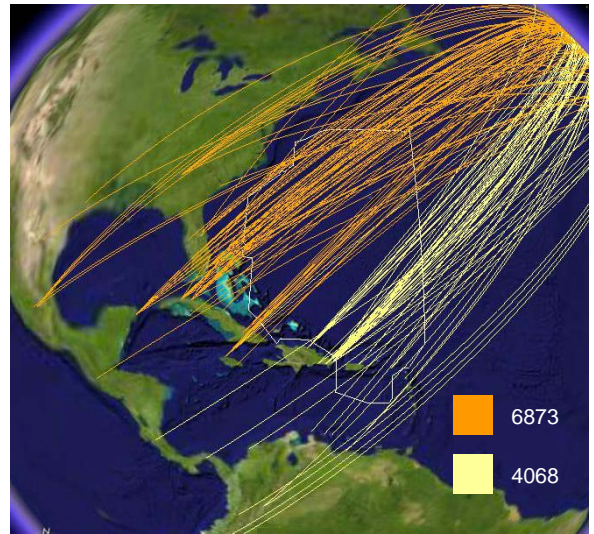


<u>Flow</u>	<u>Description</u>	<u>Traffic Count</u>	<u>Percent Contribution</u>	<u>City Pairs</u>
Flow 1	North America, Northeast to East Caribbean and South America	32174	42%	145
Flow 2b	Florida Plus to East Caribbean	11270	15%	66
Flow 2a	North America, Central to East Caribbean	9148	12%	73
Flow 5a	North Europe to Florida/West Caribbean	6873	9%	90
Flow 4	Florida Plus to South America	6058	8%	36
Flow 5b	Europe to East Caribbean	4068	5.3%	63
<i>Random</i>	<i>Random</i>	2902	4%	52
Bermuda	Bermuda	2402	3%	22
Flow 3	North America, North to Central to West Caribbean/Florida	1147	1.5%	23
Flow 6	North America to Africa	483	.63%	4

**Overview of the Traffic Flow between North America and the Caribbean/South American Regions**



**Overview of the Traffic Flow between Europe and the Caribbean/South American Regions**



## Flow Analysis Continued



**FLOW 1**



**Flow 2a**



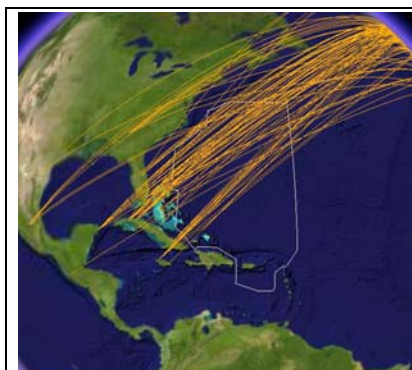
**FLOW 2B**



**Flow 3**



**Flow 4**



**FLOW 5A**



**Flow 5b**



**Flow 6**



**Bermuda**



**Random**

#### **Aircraft Capability to Meet RNP 10 or RNP 4**

1. Survey of aircraft type and long range navigation equipment capability was submitted to top 40 operators.
2. Nineteen positive responses were received.
3. Additional data obtained from June 2006 IATA Navigation and Communication Equipment Survey. Data from nine additional operators incorporated into analysis.
4. Know Your Airspace Analysis provided data on the percentage of flights conducted by individual aircraft types in the WATRS Plus CTAs. Analysis of that data indicates approximately 90% of flights are now conducted by aircraft that meet RNP 10 or RNP 4 criteria without major modification.

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